BE| VII | Mech. | Power Plant Engg. | NOV. 2012

12/12/12

17 : 12.G.nd.mk

Con. 10830-12. (REVISED COURSE) KR-1404

(3 Hours) [Total Marks : 100

N.B. (1) Question No. **1** is **compulsory**.
(2) Solve any **four** questions from **remaining** questions.
(3) Justify your **answer** with neat **sketches.**
(4) Assume suitable **data** wherever **necessary**.

1. Write short notes on :— **20**
   (a) Coal handling system in large power plants
   (b) Run-off River plant
   (c) Surge tank
   (d) Irrigation of Hydel and Thermal Power Plant.

2. (a) A load duration curve of a power plant is straight line maximum being 100 MW and minimum of 20 MW. The load is supplied by base load and peak load plant and the cost of both arc. **10**
   Given below :
   Base load plant : ₹ 200/kW·year + ₹ 0·05/kWn
   Peak load plant : ₹ 50/kW·year + ₹ 0·1/kWn
   Determine the load shared by each plant for minimum overall cost. Also find out annual load factors for both stations.
   (b) What do you understand by breeding and amplification factor ? Why amplification factor should be greater than one for breedors ? **5**
   (c) Discuss different methods to improve the efficiency of basic Gas turbine cycle. **5**

3. (a) A load curve of a power plant follows a sinusoidal curve with maximum load of 7 MW and minimum load of 1 MW on 24 hour basis. Find the average load on the plant and plant load factors. **10**
   (b) Explain in details the components of Nuclear Power Plant. **10**

4. (a) Explain the principle and working of fluidized bed combustion systems and its advantages to India. **10**
   (b) Explain the following terms in details :— **10**
      (i) Connected load
      (ii) Diversity factor
      (iii) Plant capacity factor
      (iv) Plant use facto
      (v) Demand factor.

5. (a) Explain the working of **CANDU** type Reactor with the help at neat sketch. What methods used to control the reaction rate according to load on plant ? **10**
   (b) Draw a neat line diagram of storage type of power plant and explain the working of different component when Francis turbine is used as a prime mover. Draw the hydrograph and flow duration curve for such a plant. **10**

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6. (a) Discuss in details the various systems in diesel electric power plant. State its advantages and disadvantages. 10

(b) Explain in details the various impacts of Thermal and Hydel power plants on environment. 10

7. Write short notes on :— 20

(a) Waste disposal of Nuclear Power Plant
(b) Dust collectors
(c) Hydraulic arm handling system
(d) Base and peak load plants.
